

## **2007 Eastern Lake Superior Management Unit Newsletter**

### **Newberry Operations Service Center, Newberry, MI**

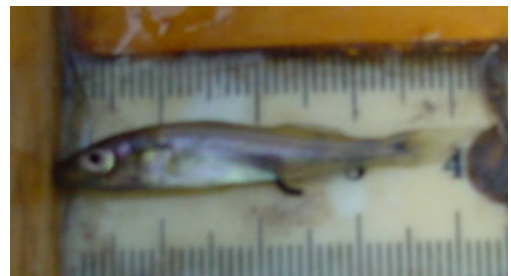
**Dear interested angler,**

Here in Newberry, we are finishing our analyses of fish growth, population dynamics and management options for last summer's survey waters. We are also working on net and other equipment repairs.

As mentioned in our previous newsletters, this report will not encompass the geographic area that it once did. The watersheds and included lakes of Chippewa and Mackinac counties that flow into Lake Huron, plus the St. Marys River, are now managed by the Gaylord staff, while those watersheds of Mackinac and Schoolcraft counties that flow into Lake Michigan are now being managed by the Escanaba staff. A map showing the new Upper Peninsula boundaries can be found on the DNR website under the Fisheries section, and also at the end of this newsletter. The Newberry unit staff will only manage Eastern Lake Superior waters, an area extending west to include the Chocolay River watershed near Marquette. We have finally seen most of our new waters, with only a few lakes or streams yet to check out. Likewise, the staff of the other management units are actively managing their new waters.

#### **Fish Rearing**

Our walleye pond operation in 2006 was limited to the Lakeshore Pond, a six-acre borrow pit just west of the Pendills Creek National Fish Hatchery. We stocked 125,000 fry into the pond on May 12. Although the walleye are normally left in the pond until early July, the fish began running out of zooplankton food much earlier this year. This past spring was quite overcast in that area, limiting plankton production. The plankton community was very good on May 31, but then began declining both in individual size and community density. For that reason, we began netting the fingerlings on June 20. About 51,867 fingerlings were stocked into local lakes, a return of about 41%. The fish were not in good condition, though, being quite skinny and smaller than usual. In addition to the sparse zooplankton, we also had to contend with a huge number of relatively large tadpoles, which eat zooplankton and small fish fry. Not only were the tadpoles competing with young walleye for food, they were also eating our young walleye. The many different problems we've experienced in this rearing pond over the years require that we begin to think "outside the box." Previous harvests have been averaging over 100,000 fingerlings per year from Lakeshore Pond, so we will continue to keep a close watch on the pond.



#### **Creel Survey**

Several creel survey clerks were employed last summer and fall at Grand Marais and Munising, and they will be on-site again this year. We also had a spring creel survey in the Sucker River to determine the amount of steelhead angling and results. Comparing the 2006 Sucker River steelhead results with those from the 2002 creel census, anglers harvested only 40% and released only 20% of the number they had in 2002. Anglers also spent only 30% of the 2002 hours, and conducted only about 30% of the 2002 angler trips. The resumption of the steelhead stocking program is being considered.

### **Natural Coho Salmon in the Anna River, Alger County**

MDNR has been stocking 25,000 coho salmon yearlings into the Anna River every year since 2003. This is an experimental plant which is scheduled for five consecutive years, ending in 2007. After those fish have cycled through the fishery (2008 to 2009) we will determine if the return to the angler is sufficient to continue this stocking. In 2005, we decided to survey the Anna to find out if the river contained any young coho salmon. It does, as the survey sites were dominated by coho young-of-the-year (YOY). Population estimates were about 4,000 YOY per acre, for each site. A few brook trout and some young rainbow trout were also captured.



The Eastern Lake Superior Management Unit (ELSMU) fisheries crew additionally spent two days last fall looking for adult coho salmon, identifying the areas they might be using for spawning, and inspecting them for fin clips indicating stocked fish. We found adults in several locations, but none of them had a fin clip. Immediately below the Anna Marsh, we observed several adults with no fin clips, one of which was a spent male. The absence of fin clips suggests that much of the natural reproduction can be attributed

to non-stocked fish. That survey left no doubt that the coho are utilizing the entire river all the way from Lake Superior to the Anna Marsh. The Anna River is a high-quality system fully capable of sustaining the young coho salmon and rainbow trout until they smolt as yearlings. There were also many brook trout of various sizes, up to 12 inches.

### **Largemouth Bass Virus in Camp Eight Lake Smallmouth Bass**

Camp Eight Lake, Luce County, has been managed as a single-species rainbow trout lake for many years. Our 1999 survey, however, found a growing population of yellow perch. Both species feed on the same basic items, and perch are much more competitive than trout. For that reason, whenever perch gain a foothold in a trout lake, they can severely limit the growth and survival of the stocked trout. In the past, the routine way to put the lake back to a single-species trout lake was to use rotenone, which kills all fish in the lake. We then continued to stock trout, as the rotenone eliminated all competition for the available food.

The rotenone chemical for a lake as large and deep as Camp Eight Lake would cost at least \$30,000, making it a very expensive way to fix the lake. As an alternative, we stocked almost 700 smallmouth bass fingerlings into Camp Eight in 2001. Our hypothesis was that the bass would target perch before trout. Predation on perch would limit their numbers, resulting in fishable populations of bass, perch and trout. The 2006 survey found many smallmouth bass and a small perch population. Angler comments later in the summer described limit catches of rainbow trout. The new management plan appears to be effective.

We captured so many smallmouth bass last summer that we decided to get them certified disease-free so that we could transplant some of them into other problem lakes. However, the certification process found them infected with Largemouth Bass Virus (LMBV). LMBV infects many largemouth bass in the southern half of the Lower Peninsula. LMBV does not affect people, and fish are safe to eat. We have now, obviously, given up the idea of any bass transplants from Camp Eight Lake to new waters, and are back-tracking the stocked fish to verify if the source waters are also contaminated with infected

smallmouth bass. A DNR article from 2004 said that Sanford Lake, Midland County, was Michigan's northern-most lake infected with LMBV. For that reason, finding LMBV in Camp Eight Lake has made a huge impact on the geographic distribution map for this virus. We will continue to monitor Camp Eight Lake closely in the future. Some sources suggest that after an initial infection of LMBV, the fish community will adapt and the virus may not have a great impact on the resident bass population in future years.

### **East Branch Tahquamenon River**

We are working with the USFS Fisheries personnel to reduce the number of beaver and their dams in the East Branch around the Strongs area. The *2004 Status of the Fishery Report* by Chuck Bassett, USFS Fisheries Biologist, described a doubling in the number of beaver dams within the previous ten years. The dams are blocking trout migration into spawning areas and limiting the total number present in the river. This project includes trapping beaver and removing dams, and will continue for several more years.

### **Surveys of Interest**

#### Au Train River, Alger County

The Upper Au Train River is a 3-mile section extending from the powerhouse downstream to Au Train Lake. Its source is Au Train Basin, a hydroelectric generation impoundment above the powerhouse. The Upper River is home to brook and brown trout, steelhead, and both Chinook and Coho salmon. The Basin was drawn down in 2006 for required dam maintenance, but will be drawn down again in 2007 to finish the repairs. Summer 2006, however, was so hot and dry that the reduced Basin did not receive enough rain and stream inflow to support the normal summer discharge to the Upper River. We assumed that the reduced water volume was producing a harsh environment for the resident fish.

We conducted an electrofishing survey in September to determine the extent of damage to the fish community. Compared with a similar survey in 1999, we captured or saw a similar diversity of species, but only about 20% of the total numbers of fish. In addition, we were walking on a very soft, light-colored layer of moving sand which had covered much of the coarser, rocky bottom. A subsequent visual survey at several sites and an airplane flight through the valley failed to identify any area of significant sand erosion. We plan to conduct a more extensive visual survey during early summer 2007, with the intention of stabilizing any site we identify. After dam repairs are made



in 2007, we are planning to conduct another electrofishing survey in either 2008 or 2009 to document changes to the fish community. At that time, we will make plans for fishery restoration if needed.

#### Blind Sucker River, Luce County

The Blind Sucker River is the original Sucker River. The original river was re-directed around 1900 so lumbermen could float their logs directly into Grand Marais harbor. After 100 years, the Blind Sucker River still has relatively clean cobblestone substrate, with enough gravel for trout and salmon reproduction. Through the 1980s and early 1990s, this river was blocked by several beaver dams.



Once they were documented, Fisheries personnel removed them in 1996. Summer temperature data loggers from 1997 and 2005 show that it warms up in the summer, though, due to its source being the shallow 1,000 acre Blind Sucker Flooding.

An early fall 2006 electrofishing survey captured good numbers of pink salmon. Although steelhead may not survive the warm summer months, this river now supports a natural population of pink salmon, a species whose young do not remain in the stream until they are yearlings. We hope the numbers continue to increase, restoring a fishery for anglers. We had stocked 29,000 young steelhead in 2001, hoping that they could find cool water refuge during the summer months. We plan to survey the Blind Sucker again in spring 2007, looking for a steelhead population that might have resulted from that previous stocking.

#### Buckies Pond, Luce County, 6 acres

Only one brook trout was captured during the 2004 survey. During the survey, technicians noticed a significant number of sticklebacks dead on the bottom of the pond in the shallow end, with obvious growths on their bodies. At that time, extra effort was put into trying to collect additional brook trout and other fish species for analysis. No more brook trout were captured or seen, even though a dissolved oxygen and temperature vertical profile showed an adequate environment for trout. Many trout were captured in Brockies Pond (an adjacent pond), which was surveyed during the same time frame. Brockies receives trout from the same source that stocks Buckies, so the mystery deepens as to why we found only one trout in Buckies.



Samples that were collected were shipped to Dr. Mohamed Faisal, Michigan State University (MSU). His analysis indicated that the tumors found on sticklebacks were a microsporidian belonging to the Glugea genus, and very unusual in inland waters. Dr. Faisal requested more samples but increased netting and shocking efforts failed to capture any more trout. However, additional fish (brook trout, and sculpins) were collected from the stream immediately below the pond and sent to Dr. Faisal. The parasite was not found in downstream waters.

Because of the poor survey results, the presence of the parasite, and costs of getting dams inspected, we have decided to remove the control structure and embankment at Buckies Pond. Spending funds for a very marginal trout fishery is not good use of our limited budget. We intend to restore the stream to a free-flowing condition. That work is planned for summer 2007 or 2008.

#### Deer Lake, Luce County, 12 acres

Deer Lake has been a trophy brook trout lake for many years. For the last six years, it has also been part of an experiment to compare Nipigon (coaster strain) with Assinica (standard strain). Although some ponds were concurrently stocked with both species, Deer Lake was stocked with only Nipigons since 2001. They experienced good survival and growth, more so than in some of the other waters.

This 2006 netting survey captured 23 nice brook trout. Only three trout were visually determined to be Nipigon strain due to a fin clip. Stocking records show that the 2005 Nipigons from Lake Superior State University, averaging 4.7 inches, had not been fin-clipped. It is likely that the captured trout were from the 2005 stocking, and 'almost age 2', as opposed to being from the 2006 and still age 0.

Despite the Nipigon strain's success in Deer Lake, however, they did poorly enough elsewhere that we will return to stocking the inland Assinica strain in all inland brook trout waters.

Deer Lake under normal conditions consists of two deep bays connected by a shallow channel. Water levels are so low at present that it now consists of two separate ponds. For that reason, we cut the future stocking rate in half. The original stocking rate was based on normal water levels and volume, with the assumption of a considerably larger zooplankton and insect forage base.

#### Grand Sable Lake, Alger County, 630 acres

Our 2001 survey produced a major question, "Where are the lake trout?" Our 2004 netting survey only captured two despite several suspended gill nets specifically targeting lakera. The two fish were large compared with the lakera caught in 1995. For that reason, we still had the same question in 2004. Changes in the stocking program may have been at least partially responsible for the fewer lake trout.



The last adults stocked were in 1995, and the yearling stocking program was changed to fall fingerlings in 1997. Almost concurrently with that change in size of fish stocked, the northern pike population began to increase in number and average size. No other factors changed so significantly. Zooplankton populations appeared adequate, while adequate dissolved oxygen and normal pH were present almost into the deepest parts of the lake. The annual stocking program of 20,000 fall fingerling lake trout ended in 2005. Data gathered during the 2004 survey implied no benefit to Grand Sable Lake by extending that prescription.

During 1995, there was concern about heavy angling pressure for northern pike, smallmouth bass and yellow perch. In 2004, however, the size distributions implied reduced angling harvest for all three species plus rock bass. All were present in good numbers and sizes. However, the perch population declined a bit. Another concern from 1995 was the size of the white sucker population. Results from 2004 show that, while their percent of the total biomass stayed similar, their size distribution changed significantly. We did not catch the smaller suckers in this survey, and average size was about five inches larger. Increased predation is the likely dominant factor in such a change.

Growth rates for northern pike increased 1.5 inches compared with state average, while both smallmouth bass and yellow perch rates increased only 0.2 inches. The fish community appears to be doing very well, and is in good balance. We expect it to remain stable.

#### John Lake East, 20 acres and John Lake West, 18 acres, Alger County

The John Lakes story is an unusual one. We received an email asking about the two lakes, John East and John West. We did not even have a file on them, but they had been mapped in the past and both were quite deep for their size, around 20 acres each. We found a way into them through ORV trails and overgrown two-tracks. The nets we set did not capture any fish, but there appeared to be adequate dissolved oxygen in the cooler depths. Their pH was quite low, limiting the fisheries management plans we could consider. Brook trout, however, are quite tolerant of moderately low pH, so we are going to begin stocking brook trout in 2007. We will keep an eye on these lakes to see how well the trout do. If the trout survive and grow, these two lakes will provide isolated, hard to reach, carry-in fisheries.

### Muskallonge Lake, Luce County, 786 Acres

We conducted a 2004 status and trends survey. Results from that survey indicated a significant decline in bullhead percent biomass, falling from 86 % in the 1998 netting survey down to 70% in 2004. Average size remained the same at 10.1 in. During the same period, northern pike average size increased from 21.7 in to about 24 in. Also during that period, sucker percent biomass and size remained stable, rock bass percent biomass increased 400 % with a similar average size, smallmouth bass percent biomass increased over 200 % and average size increased almost 1 in. Walleye percent biomass and average size remained stationary.

This 2006 bullhead manual removal lasted less than two weeks and used fewer nets than in previous removals. The decrease in effort and nets still resulted in removal of 10,600 lbs, equaling 13.4 lbs/acre. The fish averaged about 2 inches smaller than they did in 2004. The actual weight of a 150-fish sample proved to be about 10.8 lbs (34%). The bullheads were quite skinny, which implied an increase in numbers and concurrent decrease in available forage. Implications are that a balanced fish community structure in this lake may require a more frequent manual removal than every four years. Manpower and budget constraints, however, dictate that we work to produce the most benefit from our efforts. For that reason, we have to juggle many projects during each spring season. Because fish community benefits from each removal are minor and short term, we may not be conducting manual removals in the future.

Muskallonge Lake has been extensively surveyed and managed over the last twenty years. MDNR has conducted many bullhead manual removals since the mid-1980s. We have also stocked over 230,000 walleye fingerlings since 1987, with little fishery benefit to show for all those fish. In addition, this lake has always contained an abundance of sub-legal northern pike. For that reason, Muskallonge Lake has for several years carried a "no minimum size" regulation for pike. Angler reports, resort owner reports, and a part-time creel census all indicate that many small pike have been harvested annually since the regulation change. The estimated harvest was large enough to warrant some concern about over-harvest.

Growth rates for pumpkinseeds and smallmouth bass were exactly at state average. Northern pike, at -0.6 inches, were growing quite well. Because of its proximity to Lake Superior, Muskallonge lies in a heavy snowbelt area, and has long, dark winters combined with short, cool growing seasons. Rock bass at -0.7 and yellow perch at -0.8 inches were not growing as well, but they were not growing slowly enough to be considered stunted.

Walleyes have been stocked since 1987. Our survey records show that since 1992, both walleye and yellow perch numbers and average sizes have been declining. Neither species is present in large enough numbers to produce more than an occasional catch. Walleyes generally target perch as their predominant forage. Whenever both walleyes and perch are present in a body of water, their populations are usually interconnected. Because of the concurrent drop in numbers and sizes of both species, it made sense to cease all walleye stocking, so that change was made.

Northern pike were doing well. The recent change to a 0-inch minimum size appeared to have produced a very positive change in the population size structure. We had been concerned about the number of pike harvested during the last three years, especially the possibility of taking enough small pike to limit recruitment into the larger sizes. However, 51% of the pike captured in 2004 were 24+ inches. Research on large northern pike diets have shown that they prey on smaller bullheads.

#### Naomikong Creek, Chippewa County



This survey was the first of a 3-year series at the same location. We will be documenting the large woody structure, as well as the width and depth at many spots within the survey site. There is also a recording temperature data logger on-site that will continue to record until October 2007. The downstream end of the site is a large, deep beaver pond, while the upstream limit is an old beaver dam. Naomikong Creek at this site supports a brook trout dominated fish community. There were good numbers and sizes of brook trout, with many of them being legal at 7+ inches.

#### Sid Lake, Luce County, 10 Acres

Sid Lake has been a trophy brook trout lake for many years. For the last six years, it has also been part of an experiment to compare Nipigon (coaster strain) with Assinica (standard strain). Sid has been stocked with both species since 2001. Trout experienced good survival and growth in Sid Lake, more so than in some of the other waters. A 2004 netting survey captured 19 Assinicas and 43 Nipigons. We did not consider the difference significant, however, because 350 Assinicas and 600 Nipigons were stocked in 2003. The stocking numbers were equal in 2005.

The 2006 netting survey occurred in very low water. Water levels were down at least 5 ft, and the shallow western half of the lake was dry, cutting the normal surface acreage in half. Although the eastern half was still almost 20 ft deep, total lake volume was much reduced. That decrease in volume probably contributed to observed trout catch. We captured 45 brook trout averaging 12.8 inches, but they were very skinny, resembling merely head and backbone. For that reason, we cancelled the fall 2006 trout stocking to reduce competition for minimal available food, and then reduced the future stocking rate in half. The original stocking rate was based on normal water levels and volume.

#### Silver Creek Pond, Luce County, 11 Acres

Silver Creek Pond remains one of our best small inland brook trout fisheries. The employee stocking brook trout in spring 2004 was looking around and noticed what appeared to be very small, naturally reproduced trout in the upper shallow end.

The spring 2005 survey was in response to that report. Previously, we had no evidence of trout natural reproduction in this pond. A check of the mini-fykes showed that some very small fish were swimming through the fine mesh. Consequently, a backpack shocker was used to collect a sample of the small fish. Backpack efforts captured 27 small brook trout averaging 0.6 inches, while the mini-fyke nets captured another seven brook trout, averaging 1.9 inches. Trout of both sizes are considerably smaller than the trout stocked by MDNR. Because of the verification of natural reproduction, we changed our stocking plan to alternate year stocking. That protocol will allow an estimate of the contribution of naturally reproduced trout to the fishery.

#### Sitka Lake, Alger County, 31 Acres

Sitka Lake was surveyed in 2005. The only fish present in this small but deep lake were minnows, and there was good oxygen even in the deeper waters. The plankton





community was diverse and plentiful. For that reason, we began stocking it with brook trout. It received 600 yearling brookies averaging 7.3 inches in spring 2006. Because of the plentiful food supply, we expect that some of the brook trout may become legal at 10+ inches by mid-summer 2007.

#### Strawberry Lake, Marquette County, 15 Acres



Strawberry Lake is located behind the fairgrounds just north of Sands and supports a good brook trout fishery. Strawberry lake can be accessed by going through the fairgrounds to get to the township park located on the lake. No motors are allowed on the lake. No boat launch exists, so the lake is only suitable for cartop or carry in watercraft. The only residence on the lake is the caretakers, and it belongs to the park. The lake experiences heavy fishing pressure for a short time after the trout opener, according to the caretakers of the park. The caretakers lock the gate to the park at 10:00 PM.

The maximum depth we found in 2005 was 19'. We caught six large brook trout. The oxygen level and pH were good all the way to the bottom. The caretakers indicated that there was a bubbler system installed in the lake, but that it has not been used in a few years.

#### Syphon Lake, Luce County, 6 Acres

We have noticed that several small trout lakes and some 100-acre lakes are becoming low in dissolved oxygen during the late summer months. We have not yet found a common factor that is producing this result; so far the lakes seem to be affected randomly. During the late summer, we conducted a temperature/dissolved oxygen/pH vertical profile at Syphon Lake to make sure that brook trout can still live there. Our data compared favorably with similar survey data from 50 years ago, indicating that nothing unusual has occurred. Syphon Lake still supports a good brook trout population.

#### Tahquamenon River Deep Holes, Luce County

The middle section of the Tahquamenon River (Newberry downstream to the Upper Falls) has been the subject of several recent studies. Both the walleye and muskellunge radio tracking study and the Tahquamenon River Assessment are reaching completion. Another effort was conducting a temperature and chemical vertical profile of several of the deep holes existing from near the mouth of the Sage River downstream to M-123 near the Upper Falls. Results were very interesting. The deep hole about 1 mile downstream from the Sage River showed uniform temperatures and chemical parameters such as dissolved oxygen all the way down to the 25 ft bottom. All of the other holes, beginning immediately above the mouth of the Hendrie River, showed lake-like characteristics. Using the Hendrie River hole as an example, temperatures on September 1, 2006 were 70F at the surface, 67F at 10 ft, 47F at 20 ft, and 46F at 29 ft. Dissolved oxygen was 12.7 mg/l at the surface, 11.7 at 10 ft, 2.2 at 20 ft, and 0.4 at 29 ft. The pH also changed, from 7.9 at the surface to 8.3 at 29 ft.

River profiles seem to be a significant factor in the stratification or lack of stratification. The hole near the Sage River mouth is located where the river in general is only half the width and generally half the depth of the holes further downstream. Cross-sectional profile is about four times greater downstream. Total water discharge downstream is increased only by relatively minor summer inflows from Gimlet Creek, the Hendrie River, and a couple of other very small streams. For that reason, water velocity in the lower portion of the study area is probably less than 30% of that upstream. Current velocity is



easily noticeable near the Sage River, but very slow from the Hendrie River mouth downstream. Our best rationale for water quality differences is that the higher velocity upstream causes complete water mixing. Slower velocity downstream allows the water to stay in layers, or stratify. Each stratification layer, by not mixing well above or below, takes on its own chemical composition. This circumstance, and the unexpected extent of the stratification difference is quite unusual in a river environment.

#### Tahquamenon River (Upper), Luce County

The 2005 survey was the third year of our status and trends fixed site study in the trout waters of the Tahquamenon River. These surveys occurred after MDNR Fisheries had conducted a multi-year stream enhancement effort. By modifying placement of mostly instream large woody materials, we had narrowed the channel to scour sand down to gravel substrate, redeposit the sand into newly formed backwater areas, protect eroding sand banks, and scour deep holding waters underneath logs. Our last habitat effort in this stream was in 2001. The six weeks previous to the 2005 electrofishing survey was the hottest portion of a long, hot, dry summer, and the river was showing some response to that with 68F water temperatures. Even so, water depths were remarkably consistent with the previously measured depths.

The 2004 survey captured roughly 950 brook trout in the 1,000 ft survey site, of which only 3% were legal at 7+ inches. Total weight of trout captured was 33.2 lbs. The size change was positive in comparison with the 2003 survey. Growth analysis showed the trout growing well. Both size and growth corroborated the concept of our previous habitat enhancement work, and also corroborated continuing fish community adjustment to that change.

During the 2005 survey, we captured 573 brook trout weighing 26.8 lbs, and with 8.4% legal at 7+ inches. Compared with the fish from 2004, the weight represents about 31% gain per individual fish. In addition, the number captured was in spite of increasing angling pressure that resulted from the success of our previous habitat work.

A late summer visual survey entailed walking the riverbed for about twelve miles, covering the area of our previous habitat enhancement work. The upper four miles, which had earlier been dominated by loose and shifting sand substrate, was now 90-95% gravel and rock rubble throughout the main channel. Lower reaches were also showing recently exposed gravel and rock, although not in the same percentage. This was a good habitat project, with positive results.

#### Two Hearted River, Luce County

This 2006 survey was a one-site electrofishing effort conducted in an area never before surveyed. We did not pick a known good fishing site, as we wanted to see what the rest of the river was like. The site is located on private property about 0.7 mi downstream from the confluence of the South Branch and West Branch Two Heart Rivers. Survey results were marginal due to depths encountered in the site, clay substrate, and poor electrofishing conditions. In fact, the site was only 800 ft due to depth limitations upstream and downstream.

This survey effort captured one 8 inch brook trout and one 4-inch coho salmon. Other species captured were blacknose dace, white sucker, longnose dace, pearl dace, mottled sculpin, and sticklebacks. The main surprise was the small coho salmon. This site is about 6 mi upstream from the High Bridge at Co Rd 407. We have seen coho, Chinook, and pink salmon at the High Bridge; this survey documents the extended range of coho salmon migration in the Two Heart River.

### Valley Spur Creek, Alger County

This 2006 survey was the first year for a 3-year fixed site study and only four species were captured, Brook trout comprised 45% of the catch biomass, with 11% legal size at 7+ inches. Coho salmon comprised 22% and averaged 3.2 inches. None were larger than 4 inches. Rainbow trout comprised 17%, with an average size of 3.3 inches and none larger than 6 inches. Sculpins comprised the remainder of the catch biomass (17%).

Electrofishing surveys in the Anna River closer to Munising during 2005 found an estimated 4,000/acre young-of-the-year (YOY) coho salmon at two sites. The 2006 estimate for this site in Valley Spur Creek was 1800/acre YOY. Rainbow trout YOY were also present, with an estimated 328/acre. An estimated 152/acre brook trout were present, of which 10% were projected to be 7+ inches. These numbers will be compared with data generated by identical surveys in 2007 and 2008.

### Weatherhog Lakes, Chippewa County

These lakes in northwest Chippewa County were never mapped and never surveyed before 2006. Estimated sizes range from 4-6 acres per lake. We saw several anglers during the survey, which surprised the technicians until they were able to see the net capture results. No gill nets were set due to shallow water. Only two of four lakes were netted due to inaccessibility of the last two. The first and second lakes are connected by a shallow "narrows" but access to the last two is through a very narrow stream with thick brush and several beaver dams. We looked at the last two lakes and decided that they were similar in depth and vegetation.



About half of the catch biomass consisted of bullheads and suckers. Northern pike comprised 35% of the biomass due to their larger size, with yellow perch and pumpkinseed sunfish also present. Sizes were reasonable for such small, shallow lakes. The larger pike and perch imply that the lakes do not experience winter-kill, despite the shallow, densely vegetated conditions and their proximity to Lake Superior. Summer nutrient analyses found relatively high abundance of ammonium, which generally implies anoxic conditions. For these lakes, however, the shallow water, dense submerged aquatic plant colonies, and highly organic bottom imply continuous decomposition that produces a constant supply of ammonium.

These lakes provide modest fisheries for people willing to brave a narrow, poor quality road with limited turning and parking space. They also have to carry/drag a boat about 50 ft across quaking bog to approach the shoreline. The isolation esthetic, however, is unbroken by human activity other than potentially some other anglers. We anticipate no active management in these lakes.

## **Habitat Work**

### Sucker River, Alger County

We've been working in the Sucker River for several years, protecting eroding banks and modifying flows to scour sand off underlying gravel substrate. During summer 2004, we provided direction and guidance to the Alger County Conservation District, identified several severe problem areas, and began



working through the worst spots. We finished habitat work on about 1 mile of river around the H-58 Bridge, spending \$12,000 of our district money and \$2,000 from a Great Lakes Basin Grant. We also conducted an electrofishing survey at several sites to use as a pre-treatment control. Once finished, the sites can be surveyed again and compare with the pre-treatment data to see if any difference in the fish community structure can be detected.

Similar work was conducted in 2005, with the addition of two high school demonstration projects showing techniques for protecting stream banks and allowing

better current flows. Summer 2006 was an “off” year, but we plan to do some more habitat work during spring or early summer 2007.

### Tahquamenon River, Luce County



It has been 5 years since our previous stream improvement program on the Tahquamenon River was completed in 2001, and many things have happened in that time. The previously eroded banks have healed and are now almost completely vegetated. A visual check last summer revealed that there are less than 50 feet of eroded banks between the Eagle’s Nest and Ross’s Camp. This is considerably less than the 1,200-1,300 ft before the previous project. Many areas that previously had 2-3 feet of sand have been scoured clean and now have excellent spawning gravels. Slow sandy stretches have been replaced with many fast riffles, runs, and deep pools. The channel is also narrower in many places as some of the sand has been deposited into backwater areas. Natural reproduction is now contributing 100% of the brook trout population. Reports from fishermen and our own electro-fishing surveys show impressive results from our rehabilitation work. But as good as everything looks now compared to several years earlier, there are some new problems that need to be addressed if improvements can continue. Old and diseased trees continue to fall in the river and threaten to return the river to its past condition. Some woody debris that was in the river but was under the sand has now been exposed and in some cases diverts the current into fragile, highly erodable stream banks.

Fisheries Division is planning to duplicate the past improvement program this summer, probably commencing in late July or August. Work zones would be located between the Eagle’s Nest and the



sand trap located on the Stewart property. We would again be removing or repositioning woody debris to protect streambanks and facilitate current flows. We would also be looking to provide more holding or deeper water cover, especially in or near long shallow gravel stretches. Much of the previous work is holding well, so we will be working in smaller, more isolated areas.

### Sand Traps



We are maintaining only two sand traps in the Eastern Lake Superior Management Unit. Both traps are in the Tahquamenon River upstream from County Road 442, and downstream from the previous extensive habitat work. While the work produced excellent results upstream, it appears to have dislodged lots of sand that migrated downstream with the current. River gradient levels out in the bridge area, which slows the current velocity. That slower velocity, in turn, allows sand to accumulate in that area, filling previous deep holes and forcing the water to find new paths through the “spreads area.” The sand traps will intercept the sand still moving downstream, which

will minimize further accumulation in the spreads.

### **Forest Certification**

Conservation leaders around the world are beginning to require that as many forests as possible be managed in a manner that allows full sustainability. There are now several world-wide organizations that inspect, analyze and critique management practices. In 2004, Governor Granholm mandated that Michigan DNR become certified through two of those organizations. By January 2005, the Department was certified in both. The process, however, is continuous as we must retain that certification every year. After several meetings and field audits, we retained both certifications again in 2006. The process annually requires an increased number of meetings, special documented attention to individual non-conforming practices or situations, and documentation of all interactions between the divisions. Because of certification efforts, the separate divisions are working together far more than they used to, with much more interaction between forestry, wildlife and fisheries professionals.

### **Groundwater Management Legislation**

The Michigan legislature in 2006 voted to limit and permit ground and surface water extractions in Michigan. Final passage of that new law hinges on development of web-based software that will allow potential extractors to determine whether they need a permit. The Michigan Groundwater Council, not a state agency, is taking the lead to develop that internet program. Using extensive data from Department of Environmental Quality (DEQ), DNR, U.S. Geological Services (USGS), and universities, the program will allow a potential extractor to pin-point a location in Michigan. For that site, the extractor enters the amount of water they wish to extract, and the program will determine whether or not their project requires further review.

The Council invited four nation-wide experts in stream and groundwater flow dynamics to come to Michigan, view presentations and databases that will be used, and then to critique the data and methodologies. Their consensus was that Michigan was on the right track. They expressed the same concerns that the Council had, mainly the need to compare the program results with empirical data to



be sure that it says what it is supposed to say. The expert opinion was gratifying, and work is continuing to build that internet program.

### **Eco-regional Planning**

The Fisheries Division has been engaged in a long-term, landscape scale planning process for several years in cooperation with all the other DNR divisions. An eco-regional plan is being drafted which covers all ownerships (public, private and Tribal) in the entire Eastern U.P. This plan, based upon public and stakeholder values, will be used to provide long-term (10 to 50 year) management direction to DNR staff, including fisheries management staff. The plan is designed to be reviewed and updated on a periodic schedule. It will move the DNR in the direction of large-scale sustainability and afford more opportunities for DNR to work with local groups and other stakeholders for the benefit of everyone who lives in, uses or enjoys the natural resources of the Eastern UP.

### **Phase II Land Reviews**

Michigan DNR has been going through land reviews by county. Many small state-owned parcels are tax-reverted urban lots, land-locked parcels surrounded by private property, or parcels too small and/or too isolated for active forest or wildlife management. An earlier in-house exercise determined a “workable” boundary for the several large properties, and then listed the parcels that lay outside of that boundary.

The actual Phase II land reviews consisted of having foresters and biologists examine every parcel that lay outside of the border. Each division has to make a determination based on their own area of expertise. For example, NO public access sites were lost, and all parcels with rare or unique ecosystems were kept. Parcels that did not contribute to public access, did not preserve rare or special ecosystem values, or else had no legal public access were generally the ones we were willing to let go. The process is still continuing.

**A REMINDER ABOUT EXOTICS:** Exotic species such as the Zebra Mussel, Spiny Water Flea, Eurasian Water Milfoil, and others have been found in some areas around the Eastern U.P. For example, Eurasian Milfoil has been found in East Lake in Luce County and, more recently, zebra mussels were found Twin Lake in Luce County. Please take precautions to prevent the transport and introduction of these from one lake or stream to another. They can potentially do much harm to your favorite lake. Drain all water from livewell, bilge, and transom while on land, BEFORE leaving any water body. Empty your bait bucket there as well. Microscopic plant fragments or organisms can be undetectable to the human eye, but still can produce damaging populations in another lake. Clean your tackle, make sure they have no weeds adhered, as well as downriggers and other equipment. Before going to another water body, let your boat and trailer dry at least 5 days, longer is better. If you can’t wait, wash everything down with hot (at least 140 degrees) water thoroughly before entering new waters.

**A REMINDER ABOUT TROUT LAKES:** The use of minnows is prohibited in all Designated Trout Lakes. This change was necessary to eliminate contamination by non-trout species in these single species trout lakes. Such contamination results in poor trout survival, and eradication of non-trout species is both very expensive and labor intensive. Consult your 2004 Michigan Fishing Guide for more details.

**May your 2007 be filled with GOOD FISHING!**

Bob Moody, Jim Waybrant, Chuck Payment, Frank Kolson and Shawn Sapp

# Eastern Upper Peninsula Fish Stocking During 2006

County	Species	Water	Number	Age
Alger	Brook Trout	Addis Lakes	800	FF
Alger	Brook Trout	Bette's Pond	175	FF
Alger	Brook Trout	Brian's Pond	600	FF
Alger	Brook Trout	Brian's Pond	265	Y
Alger	Brook Trout	Cheryl's Pond	225	Y
Alger	Brook Trout	Cox Pond	50	AD
Alger	Brook Trout	Hike Lake	650	FF
Alger	Brook Trout	Irwin Lake	2,000	FF
Alger	Brook Trout	Kay's Pond	256	Y
Alger	Brook Trout	Rock Lake	1,000	FF
Alger	Brook Trout	Sawaski Pond	170	Y
Alger	Brook Trout	Sitka Lake	600	Y
Alger	Brook Trout	E. Br. Whitefish River	1,400	Y
Alger	Brook Trout	W. Br. Whitefish R	6,792	Y
Alger	Brown Trout	Au Train River	2,500	Y
Alger	Brown Trout	Big Indian River	2,027	Y
Alger	Coho Salmon	Anna River	25,047	Y
Alger	Muskellunge	Kingston Lake	325	FF
Alger	Rainbow Trout	Ackerman Lake	750	Y
Alger	Splake	Munising Bay	44,000	Y
Alger	Walleye	Kingston lake	2,509	SF
Chippewa	Atlantic Salmon	St. Marys River	38,032	Y
Chippewa	Brook Trout	Naomikong lake	800	Y
Chippewa	Brook Trout	Naomikong Pond	400	FF
Chippewa	Brook Trout	West Roxbury	700	FF
Chippewa	Chinook Salmon	St. Marys River	80,813	Y
Chippewa	Lake Trout	Detour Reef	100,028	Y
Chippewa	Rainbow Trout	Dukes Lake	1,250	Y
Chippewa	Rainbow Trout	Dukes lake	300	AD
Chippewa	Rainbow Trout	Highbanks Lake	1,900	Y
Chippewa	Rainbow Trout	St. Marys River	1,800	AD
Chippewa	Steelhead	St. Marys River	20,200	Y
Chippewa	Walleye	Barbeau Area	10,000	FF
Chippewa	Walleye	Caribou Lake	840	FF
Chippewa	Walleye	Lake George	68,951	SF
Chippewa	Walleye	Osborn Camp	44,096	SF
Chippewa	Walleye	Potagannissing Bay	102,078	SF
Chippewa	Walleye	Raber Bay	68,160	SF
Chippewa	Walleye	Raber Bay	2,600	FF
Luce	Brook Trout	Brockies Pond	300	FF
Luce	Brook Trout	Bullhead Lake	240	Y
Luce	Brook Trout	Deer lake	250	FF
Luce	Brook Trout	Dillingham lake	290	Y

Luce	Brook Trout	Holland Lake	350	FF
Luce	Brook Trout	Moon Lake	1,100	FF
Luce	Brook Trout	Peanut Lake	770	Y
Luce	Brook Trout	Spring Creek Pond	660	FF
Luce	Brook Trout	Syphon Lake	300	SF
Luce	Brook Trout	Teaspoon Creek	190	Y
Luce	Brook Trout	W. Br. Teaspoon Cr	280	Y
Luce	Brook Trout	Youngs lake	575	SF
Luce	Brown Trout	Tahquamenon River	4,500	Y
Luce	Rainbow Trout	Camp 8 Lakea	2,000	Y
Luce	Rainbow Trout	Pratt lake	1,500	Y
Luce	Rainbow Trout	Wolverine lake	475	Y
Luce	Splake	Belle Lake 1	2,000	Y
Luce	Splake	Pretty Lake	1,100	Y
Luce	Splake	Tank Lake	2,000	Y
Luce	Steelhead	Two Hearted River	9,100	Y
Luce	Walleye	Bodi Lake	12,177	SF
Luce	Walleye	Culhane Lake	1,353	SF
Luce	Walleye	Muskallonge Lake	10,003	SF
Mackinac	Brown Trout	Carp River	9,025	Y
Mackinac	Chinook Salmon	Lake Huron	40,124	SF
Mackinac	Chinook Salmon	Nunns Creek	250,460	SF
Mackinac	Rainbow Trout	Castle Rock Pond	600	Y
Mackinac	Rainbow Trout	Castle Rock Pond	300	AD
Mackinac	Rainbow Trout	S. Manistique Lake	1,100	Y
Mackinac	Splake	Lake Huron	37,500	Y
Mackinac	Steelhead	Brevoort River	8,220	Y
Mackinac	Steelhead	Carp River	9,400	Y
Mackinac	Walleye	Brevoort Lake	21,945	SF
Mackinac	Walleye	Millecoquins Lake	3,880	SF
Schoolcraft	Brook Trout	Driggs River	4,600	Y
Schoolcraft	Brook Trout	Indian River	670	Y
Schoolcraft	Brook Trout	Kings Pond	660	FF
Schoolcraft	Brook Trout	Lost Lake	530	Y
Schoolcraft	Brook Trout	Manistique Quarry Pd	252	AD
Schoolcraft	Brook Trout	Mid Br Stutts Cr	770	Y
Schoolcraft	Brook Trout	N Br Stutts Cr	960	Y
Schoolcraft	Brook Trout	Neds Lake	290	Y
Schoolcraft	Brook Trout	Twilight Lake	1,100	Y
Schoolcraft	Brown Trout	Big Murphy Cr	1,012	Y
Schoolcraft	Brown Trout	Indian River	2,836	Y
Schoolcraft	Brown Trout	S Br Stutts Cr	1,062	Y
Schoolcraft	Brown Trout	Manistique River	11,400	Y
Schoolcraft	Chinook Salmon	Manistique River	45,052	SF
Schoolcraft	Hybrid Sunfish	Manistique Quarry Pd	875	AD
Schoolcraft	Lake Trout	Big Spring	128	AD

Schoolcraft	Rainbow Trout	Banana Lake	800	Y
Schoolcraft	Rainbow Trout	Bear (19) Lake	1,000	Y
Schoolcraft	Splake	Dutch Fred Lake	1,000	Y
Schoolcraft	Splake	Island Lake	510	Y
Schoolcraft	Steelhead	Manistique River	7,900	Y
Schoolcraft	Walleye	Petes Lake	5,243	SF

